

SECTION 25

SODDING AND SEEDING

25-01 SCOPE: The work covered by this section of the specifications consists in furnishing all plant, labor, equipment and materials, not furnished by the Government, and in performing all operations in connection with sodding and seeding, complete, in strict accordance with this section of the specifications and the applicable drawings and subject to the terms and conditions of the contract.

25-02 MATERIALS:

a. Sod shall contain a good cover of living or growing grass. This shall be interpreted to include grass that is seasonably dormant during the cold or dry season and capable of renewing growth after the dormant period. At least 70 percent of the plants in the sod shall be composed of local type of Bermuda grass known locally [REDACTED] STATINTL sod shall be procured from areas having growing conditions similar to the areas on which it is to be used, and areas with sand loam topsoil. The sod shall be relatively free of weeds or undesirable plants, large stones, roots, and other material which might be detrimental to the development of the sod or to future maintenance. Any vegetation more than 5 inches in height shall be mowed to a height of 3 inches or less, and the hay and all other loose materials on the surface shall be removed at least 5 days before the sod is lifted. When the sod is cut, the height of the grass shall not exceed 5 inches. All sod shall be cut to provide an average thickness of two inches. Suitable sod on areas on the site, as approved by the Contracting Officer, will be made available for cutting and sodding the specified areas. All other sod shall be furnished by the Contractor.

b. Seed shall be grass seed and Legume seed mixture consisting of eight (8) pounds of Italian Rye grass, four (4) pounds of Zoysia [REDACTED] and three (3) pounds of [REDACTED] All seed shall be furnished in sealed containers, unless exception is granted in writing by the Contracting Officer. Seed which has become wet, moldy, or otherwise damaged in transit or in storage will not be acceptable.

c. Fertilizer shall be 10-6-4 grade, uniform in composition, free-flowing and suitable for application with approved equipment, delivered to the site in bags or other convenient containers, each fully labeled and bearing the name, trade name or trade-mark, and warranty of the producer.

d. Soil for Repairs: The soil for fills and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the areas to be repaired. The soil shall be reasonably free from subsoil, brush, objectionable weeds, and other litter and shall be free from clay lumps, stones, stumps, roots, or other objects larger than 2 inches in diameter, toxic substances, and any other material or substance which might be harmful to plant growth or be a hindrance to grading, planting, and maintenance operations.

e. Water: Water shall be free from soil, acid, alkali, salt, and other substances harmful to growth of grass. The source shall be subject to the approval of the Contracting Officer prior to use. Government treated domestic water shall not be used for watering. River water may be used subject to the approval of the Contracting Officer.

#### 25-03 INSPECTION AND TESTS:

a. Sod: Within 15 days before procuring sods the Contractor shall notify the Contracting Officer of the off-site sources from which sod is to be furnished. The sod will be inspected during laying operations and any sod which fails to meet the requirements hereinbefore specified or which has been permitted to dry out or become otherwise injured during transportation or storage so that its survival after placing has been rendered doubtful will be rejected. The rejected material, if necessary and suitable may be pulverized and used for filling. The thickness of the sod shall be determined at the sodding site by the following method: Eleven random sods shall be stacked in a pile on a flat surface and measured from the base of the bottom sod to the base of the top sod. This measurement divided by 10 will be accepted as the average thickness of the sod.

b. Seed: Each lot of seed shall be subject to sampling and testing at the discretion of the Contracting Officer. Sampling and testing will be in accordance with the latest Rules and Regulations under the Federal Seed Act.

c. Fertilizer: The Contracting Officer shall be furnished with duplicate copies of invoices for all Contractor-furnished fertilizer used on the project. Invoices for fertilizer shall show the grade furnished. Each lot of fertilizer shall be subject to sampling and testing at the discretion of the Contracting Officer. Sampling and testing will be in accordance with the official methods of the Association of Official Agricultural Chemists. Upon completion of the project, a final check of the total quantities of fertilizer used will be made against the total area sodded, and, if the minimum rates of application have not been met, the Contracting Officer may require the distribution of additional quantities of these materials to make up the minimum application specified.

#### 25-04 PREPARATION OF SOD AND SEED BEDS:

a. General: The areas to be sodded and their respective requirements for sodding, fertilizer and other treatment shall be as indicated on the drawings. Areas left in a satisfactory state of tillage by others and not requiring further tillage and the areas requiring special tillage or application of materials shall be as designated by the Contracting Officer. Equipment necessary for the proper preparation of the ground surface and for handling and placing all required materials shall be on hand, in good condition, and shall be approved by the Contracting Officer before the work is started. It shall be demonstrated to the Contracting Officer before starting work that the application of the materials required will be made at the specified rates.

b. Clearing: Prior to grading and tillage operations, all heavy growth of vegetation on the site which might interfere seriously

with grading, tillage, or seeding operations shall be mowed, grubbed and raked and burned or removed from the site, or when suitable, it shall be used for mulch as directed by the Contracting Officer. Prior to or during grading and tillage operations, the ground surface shall be cleared of all stumps, stones larger than two inches in diameter, roots, cable, wire, grade stakes, and any other materials which might hinder prior grading, tillage, seeding, or subsequent maintenance operations.

c. Grading: Grades on the areas to be sodded which have been established by others, as shown on the drawings, shall be maintained in a true and even condition. Maintenance shall include any necessary repairs to previously graded areas. Where the grades have not been established, the areas shall be graded as shown on the drawings, and all surfaces shall be left at the prescribed grades in an even and properly compacted condition so as to prevent the formation of depressions where water will stand.

d. Tillage: After the areas required to be sodded have been brought to the grades shown on the drawings, the areas shall be thoroughly tilled to a depth of at least three inches by plowing, disking, harrowing, or other approved methods until the condition of the soil is acceptable to the Contracting Officer. The work shall be performed only during periods when beneficial results are likely to be obtained. When conditions are such, by reason of drought, excessive moisture, or other factors, that satisfactory results are not likely to be obtained, the Contracting Officer will stop the work, and work shall be resumed only when the desired results are likely to be obtained.

e. Application of Fertilizer: Unless otherwise specified, fertilizer shall be distributed uniformly at a rate of 500 pounds per acre over the areas indicated on the drawings to be sodded. Half the fertilizer shall be applied to the area prior to sodding and shall be incorporated into the soil to a depth of three inches by disking, harrowing, or other methods acceptable to the Contracting Officer. The incorporation of the fertilizer may be a part of the tillage operation specified above. The remaining half of the fertilizer shall be uniformly distributed over the surface of the sod after all operations of placing and finishing sod have been completed and prior to the first watering.

f. Leveling: Any undulations or irregularities in the surface resulting from tillage, fertilizing, or other operations shall be leveled out before sodding operations are begun.

25-05 PROCURING AND DEVELOPING SOD: After inspection and approval of the sources of sod by the Contracting Officer, the sod shall be cut into squares or into rectangular sections. Rectangular sections may vary in length but shall be of equal width and of a size that will permit them to be lifted and rolled without breaking. Care shall be exercised at all times to retain the native soil on the roots of the sod during the process of stripping, transporting and planting. Dumping from vehicles will not be permitted. The sod shall be transplanted within 24 hours from the time it is stripped, unless stored in a manner satisfactory to the Contracting Officer. If stacked during transit or storage, sod shall be placed roots to roots or grass to grass. All sod during delivery and while in stacks shall be kept moist and shall be protected from exposure to the air and sun. Sod shall be cut and moved only when the conditions

are such that favorable results can be expected. When the soil is too dry, permission to cut sod may be granted only after it has been watered sufficiently to misten the soil to the depth at which the sod is to be cut.

25-06 PLANTING SOD:

a. General: Sodding shall be performed only during the seasons when satisfactory results can be expected. Only when authorized in writing by the Contracting Officer may sodding be done during unfavorable seasons. With the approval of the Contracting Officer, sod may be moved during periods of drought, provided the sod at its origin is watered sufficiently to moisten the soil adequately to the depth to which it is to be cut, and provided the sod bed is thoroughly watered to a depth of at least 4 inches prior to planting the sod.

b. Strip sodding shall be planted on areas with a slope of 10% or more. Strips of sod shall be laid in continuous parallel rows at right angles to the slope or flow of water so that the centers of each sod strip are 12 inches apart, starting at the crest of the slope and terminating at the toe of the slope. Each strip of sod shall be 6 inches wide and shall be laid in a trench and firmly rolled or tamped. The surface of the finished sod shall be approximately one inch below the surface of the adjacent tilled area.

c. Spot sodding shall be planted on areas with a slope of less than 10%. Sod shall be cut into 6 x 6 inch blocks. The individual pieces of sod shall be placed on 12-inch centers in parallel rows at right angles to the slope or flow of water. The parallel rows shall be placed on 12 inch centers and the individual pieces of sod in each row shall be placed at full stagger with the individual pieces of sod in adjacent rows. The individual pieces shall be placed with sod side up and pressed firmly into the soil by foot pressure or by tamping. The surface of the finished sod shall be approximately one inch below the surface of the adjacent tilled area.

25-07 PLANTING SEED:

a. General: All seeding work shall be done at the dates designated by the Contracting Officer. A method of sowing satisfactory to the Contracting Officer shall be employed, making use of approved mechanical hand-seeders or other approved methods. When delays in operations carry the work beyond the most favorable planting season for the species designated, or when conditions are such, by reason of drought, high winds, excessive moisture, or other factors, that satisfactory results are not likely to be obtained, the Contracting Officer will stop the work, and work shall be resumed only when conditions are favorable again or when approved alternate or corrective measures and procedures have been put into effect.

b. Broadcast Seeding: Seed shall be broadcast either by hand or approved sowing equipment at the rate of 300 pounds per acre. The seed shall be uniformly distributed over the designated areas. Half the

shall be sown with the sower moving in one direction, and the remainder shall be sown with the sower moving at right angles to the first sowing. The seed shall be covered by compacting as specified below. Broadcast seeding shall not be done during windy weather.

c. Compacting: Immediately after broadcast operations have been completed, the entire areas shall be compacted by means of a cultipacker, roller, or other approved equipment weighing 60 to 90 pounds per linear foot of roller. If the soil is of such type that a smooth or corrugated roller cannot be operated satisfactorily, a pneumatic roller (not wobble-wheel) will be required. The pneumatic roller shall have tires of sufficient size so that complete coverage of the soil surface is obtained. When a cultipacker or similar equipment is used, the final rolling shall be at right angles to the existing slopes to prevent water erosion or at right angles to the prevailing wind to prevent dust, as directed by the Contracting Officer. Under certain soil conditions, the Contracting Officer may direct that rolling be delayed for a period of fifteen (15) to thirty (30) minutes following planting to avoid "balling" of soil on the roller or squeezing of water out of furrows.

d. Overseeding: Sodded areas that require overseeding will be designated by the Contracting Officer. Overseeding shall be performed as specified for broadcast seeding, except that overseeding shall be at the rate of sixty (60) pounds per acre.

25-08 FINISHING OF SODDING: After the sodding operation has been completed, the edges of the area shall be smooth and shall conform to the cross sections shown on the drawings. Any suitable excess material from the planting operations shall be spread uniformly over adjacent areas and the remainder disposed of as directed by the Contracting Officer. On slopes steeper than 2 to 1 and elsewhere when so indicated on the drawings, the sod shall be fastened in place with suitable wooden pins or by other approved methods.

25-09 WATERING FOR SOD: The sod shall be given one watering as soon as it evidences excessive drying. Sufficient water shall be applied to wet the sod through completely and at least 2 inches of the sod bed as well. Additional applications shall be made as directed by the Contracting Officer. Water shall be delivered in containers which will ensure delivery of a full measured quantity without waste, and which are equipped with satisfactory means for even distribution of water at the specified rate. Watering shall be done in a manner which will prevent erosion due to the application of excessive quantities and the watering equipment shall be of a type that will prevent damage to the finished surface.

25-10 MAINTENANCE FOR SOD: The sodded areas shall be maintained until all work on the entire contract or designated portions thereof have been completed and accepted by the Contracting Officer. Maintenance consists of providing protection against traffic by erecting barricades as directed by the Contracting Officer and placing approved warning signs on the various areas, mowing once all tall grass and weeds which tend to smother the desired grass species, and repairing any areas damaged as a result of these operations.

25-11 ESTABLISHMENT FOR SEEDED AREAS: The Contractor shall be responsible for the proper care of the seeded areas during the period when the grass is becoming established and until accepted by the Contracting

Officer. Areas needing refertilizing and reseeding will be designated by the Contracting Officer at least 15 days prior to the period of refertilizing and reseeding. Refertilizing and reseeding shall be with the fertilizer and seed specified above. Reseeding shall be done in a manner which causes a minimum of disturbance to the existing stand of grass, and at an angle of not less than 15 degrees from the direction of the rows of prior seedings.

25-12 REPAIR: When any portion of the surface becomes gullied or otherwise damaged after any part of the area has been sodded, the affected portion shall be repaired to reestablish the condition and grade of the soil prior to sodding and shall then be resodded as specified above.